THE VETERINARY RECORD

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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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EDITORIAL NOTES.

How is pleuro-pneumonia influenced by inoculation? is the important question considered by Professor Gerald Yeo in the address he delivered at the opening of the Royal Veterinary College. On another page we are enabled, by the courtesy of the Principal, to give his answer in full, and no member of the profession should fail to read it carefully. Professor Yeo speaks from practical experience of tbe disease, and from a calm scientific study of the evidence to be found in veterinary literature and in Government reports. He brings to bear upon the subject an absolutely unprejudiced mind, and the trained experience of a pathological expert. He does not discuss the larger question as to whether inoculation or stamping-out is the best means of ridding the country from this bovine scourge. Even if inoculation were scientifically proven to give immunity against an attack of pleuro-pneumonia there would be room for argument as to which plan was most expedient for adoption in a country like ours. He treats the question from a purely scientific point of view, and endeavours to sift out from the contradictory opinions and irreconcilable statements of authorities all the exact knowledge we possess.

He starts with the proposition that "the characteristics of any disease that would *prima facie* suggest that it might be checked by inoculation are—

1. That the disease should be communicable.
2. That one attack should give immunity from a subsequent one and also from subsequent inoculation.
3. That inoculation should give immunity from subsequent inoculation or contagion.
4. That exceptional cases of disease arising either from a second attack or inoculation should run a modified course.

When the evidence as to inoculation is studied in the light of these requirements, the lecturer is forced to allow "that its efficacy cannot be admitted to be an established fact." He does not positively deny any value to inoculation, he seems to consider the evidence insufficient, and says "in the case of the lower animals where experimental research is feasible the value of preventive inoculation should be scientifically tested. In pleuro-pneumonia either it is useful or harmful; in one case it should be encouraged, in the other prohibited." So far Dr. Yeo agrees with those supporters of inoculation who call for further experiments, but with this important practical difference—that he would make his experiments under careful restrictions, with a view to arrive at scientific truth, whereas they would carry them out with the direct object of preventing disease. This object would be permissible if it were once proved that inoculation afforded evidence of doing what its supporters claim. At present such evidence does not exist, and it would be folly to adopt as a State regulation what science teaches us is still an unproven theory, and what practice demonstrates is an ineffective measure.

Dr. Yeo proceeds to consider the application of his four points to pleuro-pneumonia.

As to the *first* he states that "the pathologist finds it quite impossible to transmit the disease artificially by mediate communication, and the practitioner finds it impossible to control its spread through a herd when introduced by a single diseased animal." In other words, he recognises that no inoculation has yet produced the specific lung changes characteristic of the disease and he considers this "a strong but not a conclusive argument against inoculation."

As to the *second* point he says "I feel bound to conclude that while there is no adequate evidence that one attack confers immunity from a second, there is proof positive that the same animal can have a fresh pulmonary lesion after a considerable interval of perfect health, and may even infect her own lungs from an old focus of disease."

As to the *third* point he concludes "that having had the disease, or even having it acutely at the time, does not in the least prevent or modify the characteristic phenomena that follow inoculation," and he also says "I cannot accept it as proved that an animal can only take inoculation once."

On the *fourth* point he quotes from the Departmental Committee's Report—"We cannot deny that inoculation in itself is valuable as a palliative and preventive method of treatment." Upon this he remarks "I have failed to find in the evidence given before them anything that seems to afford adequate support for such a statement."

Dr. Yeo's lecture seems to us to be a fair statement of the facts and a logical deduction from them. It is most damaging to the practice of inoculation, and must be calmly and thoroughly refuted before the veterinary profession can again place any faith in the operation. The practical result of the Professor's study is summed up in one more quotation—"I cannot then satisfy myself that caudal inoculation with the exudation taken from the diseased lung is advisable either as a preventive or palliative mode of treatment."

ARTICLES AND CASES.

ARYTENOIDECTOMY—ITS RESULTS,

By Professor Walley.

On the 16th inst. I received from a friend in the Midland Counties the larynx of a horse—with the following history.

The horse was bought in the early part of the summer at Tattersall's. He was a roarer, and some two months prior to the date of his death the respiration became so very much impeded as to necessitate the performance of tracheotomy, which operation was performed by my friend.

On the 12th inst., as the canula was being cleansed, the animal's breathing became very difficult and he died in the space of a few minutes.

From the date on which tracheotomy was performed to the day of death the horse did ordinary work with perfect ease. On making the *post-mortem* examination my friend discovered that one arytenoid cartilage was wanting.

Briefly, I found the condition of the larynx as follows:—

Left arytenoid cartilage absent. Left arytenoepiglottidean fold diminished in size and contracted. The submucous tissue and mucous membrane on left side greatly thickened. The right arytenoid cartilage had fallen inwards towards the left side owing, doubtless, to the removal of the support of the left cartilage. When the epiglottis was depressed a considerable aperture was left uncovered on the left side of the glottis. The cricoid cartilage had been cut through and the space (¾ of an inch) formed by the retraction of the divided ends was filled up with new connective tissue.

The above facts need no comment; the changes noted are exactly such as might be expected to follow the ablation of such an important organ as the arytenoid cartilage.

PRACTICAL TEACHING.

By Fair's Fair.

If we are to make becoming progress, if we are to hold our own, the training of those expectant to join our ranks is a point of no slight interest to us. The letter from "A young Member" in *The Record* of October 26th is not inopportune, it but widens the crevice in the shutter and helps reveal some little things too much unheeded. It reviews the question of *practical teaching* and inseparably of *practical examination*. It is and has long been obvious that the schools, albeit actuated by best intent, have failed, have not the means and opportunities for imparting the requisite and varied *practical* instruction which might make a man "fully qualified to practice the art and science of veterinary surgery and medicine." Tardily too must we recognize and acknowledge that our Examiners in the practical division of the final test have plainly revealed the facts to us and deserved our thanks. We now learn how fairly and how faithfully they discharged their duties in fearlessly weeding out the incompetent *for their misfortune—not their fault.*

If in the matter of practical *horse* pathology there has been such lack of opportunity to the student, how much the more in the matter of *cattle* pathology, and we must all censure that first false step when an excellent examiner was made the scape-goat, than whom no man in the profession is more highly accomplished, more capable to sustain the *special* part which had been assigned to him. The next fatal mistake now apparent was to overcome the *failures to pass* by separating the viva and the *practical* in the final examination, and at the same time shunting the men who had served the cause so well.

We learn one lesson, and until the student has the advantage of such practical tuition as experience tells can only be obtained under an apprenticeship with a busy practitioner, our examiners must if need be refuse to sign, and our profession must be saved.

Surely the independence of our Council is not oppressed by the weight of interest and influence of the Schools.

INOCULATION AND PLEURO-PNEUMONIA.

An Extract from the Introductory Address at the Opening of tha Royal Veterinary College,

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Among the preventive measures which now-a-days receive most attention, Inoculation must be given pre-eminence, and the progress achieved in this department affords a good example of the rapid advance made with the new methods of research in pathology.

There certainly seems to be a great future in store for preventive inoculation. There is no obvious reason why all kinds of communicable disease may not be prevented by this means. But we must guard against being carried too rapidly forward by the flood of this mode of treatment. In several instances its efficacy is still doubtful, in more than one it has so far proved powerless, and it may even be a means of propagating disease if indiscreetly employed. Among the diseases in regard to which the question seems in some minds not to to be definitely settled is the peculiar contagious pleuro-pneumonia of cattle, a disease which has cost Great Britain a million in the last twenty years, a disease which is painfully interesting to the agriculturist from its contagious and fatal nature, and most interesting to the pathologist for many special peculiarities How is this disease influenced by inoculation?

In considering such questions as this, care must be taken not to put aside too lightly long-established vulgar belief, simply on the score that it is not founded on a scientific basis, or by scientific observers. We must remember that vaccination, which certainly was useful when small-pox was more rife, originated from common hearsay

and vulgar belief, and now is only supported by a few general principles which remain in the category of pure empiricism. In the case of the lower animals, where experimental research is feasible, the value of preventive inoculation should be scientifically tested. In pleuro-pneumonia either it is useful or harmful. In the one case it should be encouraged; in the other prohibited. From a scientific point of view its efficacy cannot be admitted to be an established fact; and in almost every item in the evidence of an unscientific kind we find opinions diametrically opposed to one another. The characteristics of any given disease that would *prima facie* suggest that it might be checked by preventive inoculation may be thus enumerated:

A. The disease should be communicable.

B. One attack should give immunity from *(a)* subsequent contagion; *(b)* subsequent inoculation.

C. Inoculation should give immunity from *(a)* subsequent inoculation; *(b)* subsequent contagion.

D. Exceptional cases, taking the disease a second time or after inoculation, should run a modified course.

As far as time allows I shall consider the position of pleuro-pneumonia in respect to each of these points. We find at the outset that it is not communicable in the widest sense of the word. One of the great pecularities of this disease is that it cannot be given to an animal by any indirect means that have yet been tried, while at the same time it is extremely contagious, *i.e.*, easily transmitted from animal to animal. In this respect it seems to stand alone among the diseases of the lower animals. The pathologist finds it quite impossible to transmit the disease artificially by mediate communication, and the practitioner finds it impossible to control its rapid spread through a herd when introduced by a single diseased animal. There seems no positive evidence that the disease can be communicated even by the medium of stalls lately inhabited by diseased animals. One might surmise that the virus would seem to thrive only in the warm moist breath of the animals themselves, as if indeed the organism—if the virus really owes its activity to one—was, during the active pathogenic stage of its existence, intensely susceptible to changes of temperature. Though the pulmonary disease cannot be set up artificially, there is no doubt that the fluid from the diseased lung, if introduced into the connective tissue, causes a specific local change in the lymphatic system in many respects like that of the lung. The fact that the lung disease is not, in the widest sense, communicable is a strong, but not a conclusive, argument against inoculation. To me the experiments on this question simply suggest that the disease is local in origin, and that the virus travels slowly by the lymph channels without apparently affecting the general system through the medium of the blood.

With regard to the statement that one attack gives immunity from a recurrence of the disease, there seems to be no positive evidence of any great weight in support of such a supposition. The modern method of treatment, namely, slaughter the moment the disease is suspected, materially narrows the field of observation, for except the first attack remain latent throughout its course the possibility of recurrence is removed. Under these circumstances a small amount of positive evidence showing recurrence of the disease must be admitted to have greater weight than much negative evidence to the contrary. The reports af the Agricultural Department give many instances of the disease showing itself in a case which was thought to have been cured. M. Leblanc mentions an animal which had twice been inoculated, and at *post-mortem* examination presented an old encysted focus of disease in the right lung, and, in a distant part, a perfectly fresh and independent mass of consolidation. An experienced observer described to the recent Committee two similar cases, in one of which a recurrence occurred after eight months interval of apparently perfect health, and in the other the animal reinfected herself after having been fifteen months under observation, and in perfect health, and died on the seventh day from the development of the second attack. On this point I can speak confidently from personal experience, as I have repeatedly met with old encapsuled masses of "cured" disease whose duration must be measured by years, together with perfectly independent recent exudation and pleural complications which brought the second attack under the notice of the veterinary surgeon.

From these facts I feel bound to conclude that while there is no adequate evidence that one attack confers immunity from a second, there is proof positive that the same animal can have a fresh pulmonary lesion after a considerable interval of perfect health, and may even infect her own lungs from an old cured focus of disease.

Next comes the question, Can inoculation "take well" in animals which have had the disease? And does it run the same course as in the clean animal? The reports of the Agricultural Department teem with evidence of inoculation of affected animals. The Belgian Commission reported that natural pleuro-pneumonia and the lesions following inoculation may exist together in the same animal, and that having had the disease did not seem in the least to change the phenomena following inoculation. The great Scotch advocate for inoculation, in his evidence before the Departmental Committee, admits that those animals which have the pulmonary disease in a very limited area do accept inoculation. Another witness gives cases in which the inoculation ran an acute and typical course, yet the animal was found to have marked pulmonary lesions of old standing. Professor MacFadyean describes three cases in which after careful *post-mortem* examination the two lesions in an unmistakeable form were found coincident in the same animal. During my own relatively small experience I met with two cases inoculated by a most skilled operator in which I found the two lesions co-existent. The tails of the animals which had been inoculated some weeks before were considered typical examples of the inoculation tumefaction, while the *post-mortem* examination showed that the pulmonary affection must have existed for a period long prior to the date of inoculation.

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having had the disease, or even having it acutely at the time, does not in the least prevent or modify the characteristic phenomena that follow inoculation.

The possibility of re-inocolation ought to be the simplest of the questions I have proposed to consider, yet I find it difficult to get exact and positive evidence on the subject. The Belgian Commission thought that the phenomena of inoculation may be produced several times in the same animal, and one frequently hears of second inoculations. But the advocates for the operation deny this re-inoculation, and say that the fact of a second inoculation "taking well" proves the first to have been unsuccessful.

The Departmental Committee of last year do not seem to have considered this point worthy of searching investigation. However, I think it of the greatest possible importance in forming an opinion upon the prophylactic value of inoculation.

If inoculation prevent similar phenomena taking place again in any part of the animal it must be allowed that the general system has in some way been affected. On the other hand, if the inoculation do not protect the subject from re-inoculation it cannot be said to give immunity from the ordinary contagion of lung disease. I can find no evidence that convinces me that inoculated animals have complete immunity from re-inoculation. Probably the part inoculated may be unable a second time to undergo the characteristic lesion which follows the first operation. But is it true that after inoculation the exudation from freshly diseased lungs can be injected into any part of the areolar tissue or into the veins without producing any effect? Of course, a negative result of secondary inoculation may have been frequently obtained without proving positively that re-inoculation is impossible.

I know it to have been stated that it has been over and over again demonstrated, after successful caudal inoculation, that injections of the virus could be made with perfect impunity into the loose areolar issue of any part. But I should like to ask those who are satisfied with these demonstrations whether they themselves would take the responsibility of the loss in case fresh virus were injected into the loose tissues of a herd of cattle a couple of months after successful caudal inoculation? Knowing the facts concerning the simultaneous co-existence of pulmonary and caudal disease. I personally should be slow in incurring any such risk.

In the absence of more conclusive evidence I cannot accept it as proved that an animal can only take inoculation once, and I think this a point well worthy of careful scientific investigation.

Now, with regard to the fourth point, which really is the main question. Does inoculation protect against the pulmonary disease? The evidence is of a very diverse and contradictory character. A very strong general feeling in favour of inoculation exists in the minds of the persons most interested in the subject. In Australia this is especially remarkable, as may be seen from the evidence given before the committee by the colonial witnesses.

The security supposed to be given by inoculation is shown to be doubtful by the number of cases that succumb to lung disease after that operation.

In the Reports of the Agricultural Department I find that cases of inoculated animals having taken the disease are frequently recorded. Indeed, when we remember that only those selected as the most healthy and resistent are chosen for inoculation, it seems to introduce no difference in the statistics.

In France some 39 per cent. of inoculated cases took the pulmonary disease. In Germany about 23 per cent., just the same percentage as in the Aylesbury dairy in 1873. In about thirty years of the practice of the most experienced inoculator in this country some 8 per cent. of inoculated beasts, carefully selected as sound, subsequently took the lung disease, although every possible precaution, such as immediate slaughter of the suspected cases, &c., was taken to keep down the sources of contagion. The question then arises, Would there be a much greater percentage of cases were these precautions alone depended upon, and the inoculation quite omitted? I think not.

In Belgium—the birthplace of inoculation—a commission in the year 1853 decided against its preventive efficacy. However, it may be urged that at that date the operation had not been perfected. At the fourth International Congress at Brussels, in 1883, it was decided that it should only be allowed with sanction of the Local Authority, and performed under the surveillance of the police. In 1885 Dr. Salmon reported to the American Government that inoculation did not lessen the losses, and was unable to stamp out the disease, and he suggested that it should be prohibited by law.

The recent Departmental Committee, after hearing all the evidence on the subject, report against the efficacy of preventive inoculation, but they say, "We cannot deny that inoculation in itself is valuable as a palliative and preventive method of treatment."

I presume the popular feeling in its favour must have led some of the committee to this conclusion, for I have failed to find in the evidence given before them anything that seems to afford adequate support for such a statement.

We must conclude from the facts that inoculation is far from acting as a perfect prophylactic to pleuropneumonia. It might, however, have beneficial influence without conferring absolute immunity upon the inoculated beasts, by reducing the severity of the disease so as to render it less fatal. But this point is not the one most strongly urged by the advocates of inoculation, nor is there any striking evidence in support of such a theory. And even were its truth admitted, would only help to prove the theoretical value of the operation, because practically, owing to the fact that the lightly affected animal must ever remain a focus of contamination, this kind of mitigation of the severity of the symptoms would be quite valueless, and inoculation would prove worse than useless in attempting to get rid of the disease.

From these general considerations I cannot, then, satisfy myself that caudal inoculation with the exudation taken from the diseased lung is advisable, either as a preventive or palliative mode of treatment.

But is there no scientific evidence which can remove these general doubts? In these days of microbic cultivation can we not find the *materia peccans?* Can we not learn how to curb its virulence?

To demonstrate scientifically the value of prophylactic inoculations the following evidence should, I think, be forthcoming:

(1) The disease must be proved to depend upon one specific organism, for some such reasons as these:

a. Invariable presence of the organism in the tissues.

b. Possibility of absolute isolation of organism, and repeated pure cultivation.

c. Renewed production of the disease by cultivated organism.

(2) The virulence of the virus must be shown to be capable of mitigation by means of:

a. Prolonged pure cultivations.
b. Change of soil (different animals).
c. Excess of temperature.
d. Variation in O. supply.
e. Action of antiseptics.

If we seek this evidence in pleuro-pneumonia we find certainly that there is no lack of bacteria in the diseased parts of the lung. This one would expect from the fact that the part has free access to the open air. Some of these bacteria are found to be present with remarkable constancy, but their perfect isolation and pure cultivation seem to offer considerable difficulty. I understand M. Pasteur devoted some time to the separation of the specific microbe, but he abandoned the research. Since then, however, many observers have isolated and cultivated organisms which they consider to be the specific cause of the disease, and a remarkable similarity exists between some of the forms of bacteria described by different experimenters.

An important link in the chain of evidence seems to be wanting when the production of the pulmonary disease is attempted. I am not aware that any experimenter has yet satisfied anyone but himself that he could produce the pulmonary lesion from a cultivation. Indeed, cultivation seems rapidly to rob the supposed virus of its virulence, and by the time a really pure cultivation of any of the suspected organisms is obtained it seems to have lost its power of setting up even the peculiar local changes in the connective tissue which accompany successful inoculation.

M. Arloing, of Lyons, recently communicated verbally to me the substance of his paper at the Veterinary Congress in Paris, detailing his method of isolating the bacterium and his mode of mitigating the virulence of the virus by intravenous injections of the cultivations which set up changes in the lymphatic glands of the animal. From these glands he could obtain the same organism; and inoculation with material from these glands produced a much less violent lesion. Thus, no doubt, the bad effects of inoculation may be lessened or removed, but as far as I could gather from our conversation the probability of the prevention of pleuro-pneumonia remained as far distant as ever.

I shall not touch upon the good reasons set forth in the report of the Departmental Committee for the refusal to admit the advisability of experimental research with a view of testing the relative efficacy of inoculation and of slaughter as modes of stamping out the disease. But I think the question of inoculative prophylaxis urgently demands careful scientific investigation, in order to determine whether the operation be not more than useless.

If it cannot be applied so as to be perfectly prophylactic by conferring complete immunity upon the inoculated beasts, it must be worse than useless, for any palliative effect could only tend to prevent the recognition of a disease already too obscure, and thus to perpetuate instead of eradicating the plague.

In my opinion except it be definitely proved that inoculation of one part gives immunity from further inoculation of any other part of the animal, the operation should be condemned and prohibited except under the sanction and control of skilled inspeciors and under all possible restrictions and removal prohibition.

If the local phenomena caused by inoculation cannot be warded off or rendered impossible by a previous operation, I cannot conceive any logical grounds upon which its prophylactic efficacy can be based. The poor beasts should be spared the pain and inconvenience of losing the useful tip of their tails and the owners saved the needless expenditure and anxiety of such futile procedures.

VETERINARY MEDICAL SOCIETIES.

BORDER COUNTIES' VETERINARY MEDICAL SOCIETY.

The next meeting of this Society will be held at the Bush Hotel, Carlisle, on Friday, the 8th of Nov. when Mr. Thompson, M.R.C.V.S., Aspatria, will read a paper on "Odds and Ends," and will also illustrate the different subjects with specimens.

Several dental and parturition instruments will also be exhibited.

Chair to be taken at 1 p.m. by the President.

J. Armstrong, *Hon. Sec.*

VETERINARY MEDICAL ASSOCIATION OF IRELAND.

A meeting of the Veterinary Medical Association of Ireland took place on the 26th August, 1889, at the Gresham Hotel, Dublin.

The members present were: Chas. Steel, president; Jas. McKenny, honorary secretary; T. D. Lambert, B. L. Glover, Chas. Allen, John Freeman, Wm. Pallin, G. Pickwell, P. A. Lawlor, J. H. Jones, D. Fulton, and J. V. Daly; also Dr. Swan, and Professor Walley. Messrs. Dunlop, Darby, Cronyn, Winter, and James Kettle, were there.

An interesting discussion took place on the subject of a paper, entitled—

MUSCULAR LESIONS IN THE HORSE.

By Thomas Walley, M.R.C.V.S.

Principal of the Royal Veterinary College, Edinburgh.

The subject of Muscular Derangement and Disorder is one of paramount importance to the veterinary surgeon as well as to the Animal Creation. In discussing this matter I shall glance briefly at what I consider the most important aspects of the question, and shall divide the subject (1) into Functional Derangement, and (2) into Organic Disorders of Muscles.

Functional Disorders.

(*a*) Partial loss of function—atonicity or paresis.
(*b*) Total loss of function—paralysis.
(*c*) Excess of function or hypertonicity.

Paralysis of muscle—except in those cases where the organ is actually divided in a mechanical manner—is most largely due to injury or division of the nerve of supply, and is characterised by inability on the part of the muscle to perform its normal function. In some cases, however, it is due to atrophy or fatty degeneration, resulting from inflammation of the muscular structure; this process, especially if of a rheumatic origin, also annihilates the function of the muscle by producing interstitial changes.

It is not my intention to treat, at length, this condition in this place, as I shall have to refer to it frequently hereafter.

It is obvious that the symptoms produced by either partial or total paralysis will depend on the particular muscle or muscles involved, and that the treatment of this condition will further depend on the view taken as to its cause. If the cause is apparently one of temporary nerve paralysis the free use of nerve stimulants internally and locally is indicated, strychnine and electricity being most valuable. If, on the contrary, paralysis has its origin in actual organic changes, much benefit cannot be expected from treatment.

Excess of power is undoubtedly due to some form of nerve irritation; it is questionable (to my mind at least) if there is any force with which we are acquainted that is likely to induce contractility of the muscles independently of the nerves. Excess of power is marked by shortening or contraction, and extreme rigidity of the muscle; and, inasmuch as this contraction may be of a convulsive character and of temporary duration, or of a persistent character and more or less permanent, we are in the habit of dividing muscular spasm or cramp into two forms, viz., *clonic or convulsive*, and *tonic or tetanic*.

Local muscular spasms may be, and undoubtedly are in many instances, due to exhaustion, hence it is sometimes seen in sets of muscles, either of the hind or fore limbs, especially in hunters after a hard day's work. In this way also arises cramp in the leg of man

Cramp may, however, be caused by some direct irritation of the nerve of supply, as from the pressure of harness, *e.g.*, the muscles of the lower and anterior part of the neck and the anterior part of the shoulder from irritation of a tightly-fitting collar. Again, cramp may be due to some form of distal irritation; thus I have seen persistent cramp of the fore-limbs of a horse produced by the irritation of painful sidebones Exposure to sudden cold or chill is another prolific cause of cramp, and in the dog and the ox it is frequently associated with, and due to, gastro-intestinal derangement; but, perhaps, the most persistent form of cramp met with in veterinary practice is that resulting from muscular rheumatism.

While cramp is, in a sense, associated with excess of power, it is in another sense marked by a loss of power. Thus the limbs may be so rigidly fixed as to render an animal incapable of locomotion.

The local symptoms are, apparent swelling of the affected muscle, due to shortening of its fibres, extreme hardness and rigidity, slight increase of temperature, and sometimes supersensitiveness. When located in the muscles of locomotion, the limbs are usually straightened and more or less fixed; this may be noticed either during quiescence or, if the animal is compelled to move, during locomotion. One of the most remarkable cases of persistent cramp I have ever seen was cramp of the pectoral muscles of a horse. This animal was a patient of my colleague, Mr. Baird, and the legs were not only closely approximated but also straightened, and as the animal moved, the legs were alternately crossed in front of each other.

While cramp is always accompanied by pain, it does not *per se*, lead to any constitutional disturbance.

The indications of treatment are, the application of heat, friction, and stimulants; or on the contrary, the use of nerve sedatives, particularly Belladonna or its alkaloid atropin. In some cases the combination of Belladonna with a stimulant gives very satisfactory results. Belladonna, Conium, and Bromide of Potassium may be administered internally, and if evidence of rheumatism exists they may be combined with anti-rheumatics.

In one case of rheumatic origin, which occurred in my practice some years ago, no relief was afforded until I administered large doses of Strychnine combined with Bromid and Iodid of Potassium.

In considering the subject of Organic Derangement, I shall in the first place refer to that most important condition, viz., inflammation of muscle or *myositis*, but in this connection I do not include actual wounds.

Inflammation may be acute, sub-acute, or chronic; it may arise (and in practice most largely does so) as the result of violent strain. In fact, the great majority of cases of muscular derangement have their origin in the application of this force.

Myositis may be rheumatic in its origin, and in this case is of an interstitial type. It may be specific, *e.g.* tubercular, but tubercular myositis is not, in my experience, seen independently of some specific glandular periostial or arthritic disease.

Idiopathetic myositis is probably never seen. The symptoms of myositis are, on the whole, ambiguous; thus if resulting from strain there is more

or less functional disability but not necessarily actual lameness. If the strain, however, is very severe, disability and lameness are pronounced, there is local heat and swelling with tenderness, and in some cases the swelling is increased by extravasation of blood owing to rupture of the vessels; as a rule there is no constitutional disturbance unless the nerves are involved in the injury, in which case the suffering is sometimes extreme, and I wish particularly in this place to emphasise the probability of muscular strain being associated with nerve injury, as, in my opinion, many of the results of muscular strain met with in practice are dependent rather upon nerve injury than upon muscular injury, and I am satisfied that the atrophy that so frequently follows such injuries is due rather to nerve than to muscular lesions, and atrophy is frequently the first evidence afforded to us of the fact that any particular muscle or set of muscles has been injured.

The locomotary signs of muscular injury are special to the particular muscle involved, and are in some cases so pronounced as to be diagnostic, as I shall hereafter show. The indications of treatment of myositis are rest, fomentation, and the application of stimulating and anodyne liniments, with the administration of anti-rheumatics where myositis is of a rheumatic origin.

The results of myositis are atrophy, hypertrophy, fatty degeneration, fibroid substitution, and, very exceptionally, suppuration and mortification.

Atrophy of Muscle is generally indicated by wasting and loss of function and, as you are aware, it is frequently produced independently of inflammation by the withdrawal of the stimulus of motion, *e.g.*, in lameness and in paralysis of the nerve of supply; and by the withdrawal of nutrition, as in the formation of acute abscess in immediate proximity to muscle. One form viz., rigid atrophy, is occasionally seen as the result of permanent displacement of bone—*e.g.*, in luxation of the patella and dislocation of the shoulder joint.

Whenever signs of atrophy are observed the application of stimulants, friction, kneading, and moderate (enforced) exercise are indicated.

Rigid atrophy when confirmed can only be dealt with effectually by myotomy: persistent friction with traction, and the use of a lubricating oil may be had recourse to.

It is obvious that in all cases of atrophy due to degeneration of muscular fibre no treatment can be of any avail.

Hypertrophy of muscle when following inflammation is really of a false character and is due to an increase of interstitial tissue and not to any actual increase in the muscular elements themselves.

As an independent condition, hypertrophy of muscle—apart from that which accompanies extreme functional use—is rarely seen in veterinary practice. On one occasion, however, a remarkable case of hypertrophy of the latissimus dorsii came under my observation. The case occurred in a lorry horse, and so pronounced was the hypertrophy as to lead the practitioner who had the case under his charge in the first instance, to pronounce it to be a case of fibrous tumour originating in the periosteum of the ribs, and to advise its removal with the knife. When the case came into my hands I arrived at the same conclusion and actually "cast" the horse and proceeded to operate, but on making a tolerably large exploratory incision I found, to my astonishment, that no tumour existed, the apparent or supposed tumour being nothing more nor less than gross hypertrophy of the muscular elements, which were otherwise in a normal state. I passed a seton through the mass and applied repeated blisters, with the result that the muscle was ultimately reduced to nearly its normal proportions. I attributed the hypertrophy in this instance to undue or unequal pressure of the saddle.

Softening and Degeneration of Muscle.

In acute inflammation of muscle various forms of softening and degeneration may occur. Thus we may have *fatty degeneration* extending over a greater or smaller area with subsequent absorption of the fatty elements, followed by one form of atrophy and annihilation of the function of the muscle. This condition may occur, however, as the result of the withdrawal of nerve force, *e.g.*, laceration of nerve or nerves, and from infarction. The existence of such condition can only be assumed, and it is obvious that no treatment can be of avail in restoring the muscular tissue or probably even of arresting the degeneration.

The most acute forms of softening and degeneration met with in veterinary practice are those which result from the infiltration of lymph into the abductor muscles of the thigh in acute glanders, constituting the so-called "glanders tumour" and the rapid softening which follows the lesions of purpura hæmorrhagica.

In the former case the lesion is usually associated with acute inflammation of the inguinal lymphatic glands, and it is in itself of the nature of an acute specific inflammation, the involved muscle on *post-mortem* (as shown in the sketch I submit) being intensely hyperæmic.

In the latter case it is due to the ploughing up of the tissues by the infiltrating blood, as also to destruction of the vessels and to the subsequent degeneration of the effused blood itself; and, inasmuch as the skin is commonly involved, it is followed by sloughs more or less deep and extensive.

Softening due to suppuration is sometimes seen as the result of injury, terminating in muscular abscess with the external evacuation of its contents.

Mortification of muscle, apart from the processes just noticed, is seldom seen. On one occasion, many years ago (in the practice of Messrs. Lawson, Manchester) I had under my care an omnibus horse in which the whole of the abductor muscles of the thigh became mortified, but on *post-mortem* examination I discovered that there had been acute phlebitis and destruction of the large veins of the limb, and more recently I met with a case of mortification of the abductor muscles of the thigh in an Alderney cow. The history and course of this case pointed to the primary existence of grave vascular lesions as the cause.

Interstitial Changes in Muscle.

These may result from a sub-acute or chronic inflammation as the result of a simple strain, but we are more familiar with such processes in connection with rheumatism.

The changes may be only slight and quite insufficient to interfere with the normal function of the muscle; on the contrary, they may be so extensive as to render it functionally useless. There is further some little danger of the process being associated with the deposition of bony matter, a condition, I may observe, most largely seen in the flexor brachii; the structure of this muscle pre-eminently predisposing it to these changes. Otherwise, the deposition of osseous masses in muscle, constituting osteophytes, or the transformation of muscle into bony matter, is rare. In either case treatment, other than surgical, is of little avail.

Specific Diseases of Muscle.

Independent disease of a specific nature is of a very rare occurrence in muscle. As already indicated, tubercular myositis is occasionally met with in the ox and in the pig; but always in association with, and as an extension of arthritic, osseous, or periosteal disease.

Cancer or sarcoma usually occurs as an extension of disease from lymphatic glands, and I have the opportunity of showing you a rough outline sketch of the near thigh of a mare which I saw in the practice of Mr. Robson of Penrith, a short time ago, and in which the malady had undoubtedly originated in the inguinal lymphatic glands. As in all similar cases the involved parts were extremely tumefied and indurated, and were the seat of periodical softening and formation of abscesses with external eruption. Twenty-nine cicatrices were counted on the skin of the inside of the thigh, and notwithstanding the nature of the disease, the mare has been in work constantly since it was first observed—a period of two years.

Some years ago a case of sarcoma in the gasteroc-nemius of a Jersey cow came under my notice in which the muscle became completely severed during a voyage from St. Heliers to Leith.

Melanotic deposits in association with general melanosis I have met with on one occasion only.

Actinomycosis has not, so far as I know, been detected in the voluntary muscles of any animal in this country; it seems (according to Johne) to be of comparatively frequent occurrence in the pig in some continental countries.

GOVERNMENT VETY. DEPARTMENT.

CONTAGIOUS DISEASES IN ANIMALS.

Reported in Great Britain and Ireland during the week ended October 19th, 1889.

Pleuro-pneumonia.—Only 2 fresh outbreaks of this disease were reported in Great Britain during the week, 1 was in England, in Essex, the other in Ayrshire, in Scotland. The number of cattle attacked was 27, viz. 2 in England, and 25 in Scotland; in addition to these 73 healthy cattle which had been exposed to infection were slaughtered, 13 in England and 60 in Scotland. In Ireland 4 fresh outbreaks were reported, all in Co. Dublin, 4 cattle were attacked, 3 of which were killed and 1 died.

Anthrax.—There were three fresh outbreaks of this disease reported in England in the counties of Leicester, Norfolk, and Warwick; 5 animals were attacked, 4 of which were killed and 1 died. No fresh cases of anthrax occurred in either Scotland, Wales, or Ireland.

Swine-Fever.—In Great Britain 76 fresh outbreaks of swine-fever were reported, and 541 swine attacked. Of the diseased swine 363 were killed, 176 died, 34 recovered, and 428 remained alive at the end of the week. In Ireland only 4 outbreaks of swine-fever were reported and 4 pigs were attacked.

Glanders and Farcy.—There were 11 fresh outbreaks of glanders reported in England, 1 in Lancaster, 9 in London, and 1 in Middlesex: 18 horses were attacked, 1 in Lancaster, 16 in London, and 1 in Middlesex. In England 12 fresh outbreaks of farcy were reported, 1 in Kent, 10 in London, and 1 in Middlesex; 29 horses were attacked, 1 in Kent, 27 in London, and 1 in Middlesex. No cases of either glanders or farcy were reported in any other part of the United Kingdom.

Rabies.—In England 5 cases of this disease in dogs were reported, 2 in London, 2 in Middlesex, and 1 in York (W.R.). In Ireland 4 cases of rabies were reported, 2 in dogs, in Armagh and Galway, and 2 in cattle, in Cork.

TUBERCULOSIS—
LEGISLATIVE DIFFICULTIES.

Extract from the Annual Report of the Agricultural Department, Privy Council Office, 1888.

In accordance with the recommendations of the departmental committee, an Order was prepared for the purpose of including tuberculosis in the list of contagious diseases for certain sections of the Contagious Diseases (Animals) Acts:

a. For the slaughter of diseased animals when found on the owners' premises.
b. For the payment of compensation for the slaughter of such animals.
c. For the seizure and compulsory slaughter of diseased animals when exposed in fairs, markets, &c., or during transit.
d. For the seizure and compulsory slaughter of diseased foreign cattle and of those in the same cargo at the place of landing.

Before, however, the Order was passed, it was deemed necessary to submit, for the consideration of the Lords of the Committee of Council for Agriculture, the following important facts:—

Tuberculosis is in many cases extremely difficult to detect, and therefore a number of diseased animals would probably altogether escape notice.

Further, there are other diseases which are constantly mistaken for tuberculosis.

In various parts of Great Britain, more particularly in the fen districts of Cambridge, Essex, Lincoln, Norfolk, Sussex, and in Scotland, and in all parts of the country where the land is wet, there is a disease which is very prevalent among cattle, known in Scotland as clyers or cruels, and in England as wens or sitfasts. These tumours are usually considered to be of a tubercular or scrofulous nature.

This affection is described in standard veterinary works as one of the forms which tuberculosis or scrofula assumes.

Attention was called to the extensive prevalence of these tumours (wens) among cattle in the fen districts about two years ago, and an inquiry into the nature of the disease resulted in the discovery that these so-called scrofulous or tuberculous tumours were due to the presence of a parasitic plant, actinomyces, producing a disease which is well known on the continent as actinomycosis.

Reference to Professor Crookshank's exhaustive reports on tuberculosis and actinomycosis in the appendix to this report will show in what respects the two diseases are related to each other.

There is also another disease known as lymphadenoma, which in some respects resembles tuberculosis, and might readily be mistaken for that disease.

Further, there are many cows in this country in which indurated portions of the mammary gland may be found, but whether these indurations are of a tubercular nature or not can only be determined by a careful microscopic examination of the milk, and probably also of the structure after a complicated process of staining.

Rheumatism with enlargement of the joints in young cattle is frequently looked upon as a form of tubercle (scrofulous arthritis), more particularly if it appears in pedigree stock, and it is described in some veterinary text books under that heading.

It may be added that old cows which have been badly kept become emaciated and present an appearance which causes them to be classed as wasters or piners, although on *post-mortem* examination it is found that they are perfectly free from tubercle or other organic disease.

From the foregoing remarks it will be obvious that there are several common affections, from which cattle suffer, usually considered of a tubercular nature, and should an Order be passed to deal with tuberculosis, it is quite certain that numbers of cases of actinomycosis and the other diseases above-mentioned, as well as of animals suffering from debility as the result of starvation, would be reported as tuberculosis, and the animals suffering from these affections would be seized and slaughtered.

Nor do the difficulties end here. Tuberculosis is known to exist in certain pedigree herds, and many valuable animals would fall under suspicion which could only be verified or proved to be false by the test of a *post-mortem* examination. In such cases the inspector would find himself on the horns of a dilemma. He would be forced to slaughter an animal worth some hundreds or perhaps thousands of pounds on a suspicion which might prove to be baseless; or he must keep the suspicion to himself and let the animal alone.

Compensation presents another difficulty not easily disposed of. The Act of 1878 provides that compensation for diseased animals slaughtered shall be a proportion of the value of the animal immediately before it became diseased, *i.e.*, when it was healthy. An old consumptive cow in the state of a "piner" or "waster" would not be worth more than the value of its hide when slaughtered, while in its original healthy state it might have been worth a considerable sum.

Compensation for valuable pedigree cattle would certainly form a point of contention between owners and local authorities in every case where the slaughter of a valuable animal was ordered.

In the present state of the law affecting the landing and disposal of foreign animals, the inclusion of tuberculosis in the list of diseases within the provisions of the Contagious Diseases (Animals) Acts would lead to complications which no scheme that has yet been devised will rectify, and having regard to all the circumstances which have been referred to, their lordships did not deem it expedient to pass the Order of Council which had been prepared on the lines of the Committee's report.

EXTRACTS.

USE AND ABUSE OF ASSOCIATIONS.

At a meeting of the Dundee Assistants' and Apprentices' Association, speaking on the good and bad of Associations, Mr. Gilmour said:—

One is ever to remember that you are gentlemen—gentlemen in the true sense of the word, namely, in that you are ever kind and courteous to one another, and to everyone with whom you associate. Young blood is hot and hasty, and the temptation may often be very strong to say a smart thing, or pass a severe criticism upon a weak brother. I hope you will not misunderstand me. I believe in calling a spade a spade, and not in calling it by the more euphonious title of an agricultural instrument, and I also believe that an honest, straightforward criticism will always do good and not harm. At the same time I have observed that more associations are ruined or crippled by the attempts of members to pass smart criticisms and clever comments on the papers of their brother members than from any other cause. Whenever anyone differs from you, and especially if your feelings are very high, you are apt to style him a fool, or, in more vulgar language still, an ass. This is not gentlemanly, nor is it true. This is not calling a spade a spade. It is simply stigmatising your friend, or who should be your friend, and attempting to bring him into ridicule, and, quite naturally, suspicions, jealousies, evil-speaking, and all other angry passions rise. The world is wide enough for all opinions, and one of the first lessons, and most important, which we

have to learn in our younger years is to be tolerant—that is to say, gentlemanly—regarding our fellow-men's opinions. Be just then in all your criticisms, leaning to mercy's side, and remembering that some timid, shrinking spirit may for ever, or at least for long, be extinguished under the lash of your severe sarcasm.

Another point in connection with your association is that you must all be workers. Drones are, to say the least, drags upon an association. They add, no doubt, to its numbers, but not to its strength. Every member should endeavour to contribute his mite to the general good of the association. You may do this in two ways: by contributing short practical papers upon what you observe or upon what you discover in your daily work, or by short pointed observations on the papers read. Regarding the first of these methods, I have often been asked, "What can we investigate or write upon?" My young friend, there is not a single subject in pharmacy upon which you may not experiment and discover something new. There is scarcely a mixture which you make up, or an operation which you perform, or a substance which you handle, that does not contain some unknown factor in its physical, chemical, or medicinal futurity.

SENSIBILITY OF ANIMALS TO PAIN,

That animals are conscious of pain there can be little doubt; nor can we doubt that there are great differences in the susceptibility to pain in different animals. The touch of a whip which will make a dog howl, and a thoroughbred horse to quicken his pace, will apparently be unfelt by an ass. Again, some animals seem to be susceptible to acute pain in certain parts, while they scarcely feel pain in others. A horse or cow will soon feed after a fracture of the leg, but an attack of colic or of peritonitis at once prostrates them, causes them to emit cries and groans, and entirely takes away the disposition for food. It is often thought that muscular movements show that pain is experienced, but every physiologist is well aware that violent movements can be excited having a tendency to withdraw the part irritated from the cause of irritation without the least perception of pain on the part of the animal. This is most conspicuous where the spinal cord is divided; the contact of a hot spoon with the sole of the foot will cause the leg to be violently drawn up, though neither in animals nor in man is there under such circumstances the slightest consciousness of pain. Cries again afford little information in regard to the endurance of pain, and indeed seem rather to be associated with the emotion of fear, as is shown by the circumstances that many animals caught in a trap will utter no sound, though severely lacerated, whilst they immediately emit cries on the appearance of the hunter.

Dr. Collier points out that animals are not liable to shock, and hence after the severest injuries will continue to feed as though nothing had happened; that many animals, as crabs, will throw off an offending limb; and that most animals die in deadly conflict or under the occurrence of sudden wounds, when evidence derived from man shows that little or no pain is experienced.

Mr. Rowell has accumulated in his "Essay on the Beneficent Distribution of the Sense of Pain" a series of remarkable cases, showing the very low sensibility of even the higher animnls. He gives, for example, the case of a post-horse, which was running between Botley and Evesham, when it came down with such violence that the skin and sinews of both the fore fetlock joints were so cut that on its rising the bones came through the skin and the feet turned up at the back of the legs, the animal walking on the ends of the leg bones. It was placed in a field till permission was obtained for having it shot, and the next morning it was found quietly grazing, with the feet and skin forced some distance up the leg bones. Dormice, rats, and even monkeys will nibble away their own tails, and an old hyæna kept in the Jardin des Plantes at Paris had its leg broken, and one night bit off the leg at the broken part and ate it.—*The Lancet.*

NOTES AND NEWS.

The Fellowship Degree.

At a meeting of the Court of Examiners held at Red Lion Square, on Oct. 30th,

Mr. R. W. Burke, A.V.D.,
Mr. J. H. Loft,
Veterinary Inspector, Gt. Grimsby,

presented themselves for examination and obtained the diploma.

Midland Counties Veterinary Medical Association.

The next meeting of the above Association will be held at the Bell Hotel, Derby, on Friday, Nov. 8th, at 2.30 p.m.

BUSINESS:—

To receive the Report of the Committee appointed to revise the rules.

To receive the Report of the Committee appointed to examine the Roarers operated upon by Professor Axe, at Wolverhampton, on the 24th May.

To draw up resolutions petitioning the powers that be

(1) To include Tuberculosis under the Contagious Diseases (Animals) Act;
(2) To appoint a Commission to enquire into the Inspection of Meat in Great Britain.

Professor Williams will read a paper on Rheumatism.

Dinner 5.30 prompt. JOHN MALCOLM, *Hon. Sec.*

Central Veterinary Medical Society.

The Annual Meeting of this Society will be held at the First Avenue Hotel, on Thursday, November 7th, at 5.30.

Mr. William Hunting, the President, will give his inaugural address, and dinner will follow at 6.30.

A good attendance is expected and visitors are welcomed.

College Prizes.

On the opening day of the Royal Veterinary College Professor Axe announced the result of the examinations for the College Prizes as under:—

COLEMAN PRIZES.

Silver Medal	Mr. W. A. Byrne
Bronze Medal	Mr. J. Beanland.
Certificate of Merit ...	Mr. A. Le Sueur.

SCHOLARSHIP.

£25 *per Annum for Two Years* Mr. J. W. Reynolds.

CLASS PRIZES.

CLASS C.

Contagious and Parasitic Diseases	Mr. E. E. Martin.
Veterinary Medicine and Surgery	Mr. J. Beanland.
Morbid Anatomy and Pathology	Mr. T. Ludlow.
*Therapeutics**	Mr. J. Beanland.

CLASS B.

Anatomy	Mr. J. Row.
Histology	Mr. F. M. Hill.
Physiology	Mr. T. C. Garry.

CLASS A.

Chemistry and Toxicology	Mr. G. H. Williams. Mr. J. H. Taylor.
Practical Chemistry	Mr. J. Toms. Mr. F. W. Wilson.
Botany	Mr. G. C. Lowe.
Elementary Anatomy ...	Mr. J. H. Taylor.

* For the Therapeutics Prize of last year, 1888, Mr. Bush and Mr. R. W. Knowles of Wisbeach, were bracketed equal, but by mistake the latter gentleman's name was omitted.

Sad Death of a M.R.C.V.S.

On Tuesday night, while riding a spirited horse that was given to shying in the gaslight, Mr. Henry Newson, M.R.C.V.S., an inhabitant of Beccles for the last five and twenty years, and well known in the district, was thrown and met with such serious internal injuries that he died on Thursday evening, aged forty-nine years. An inquest was held on Friday afternoon, before Mr. C. W. Chaston, county coroner. Mr. T. A. Woodroffe was foreman of the jury.

George Woolner, assistant to the deceased, said that on Tuesday last, about 10 p.m., he went up London Road to the deceased, who was riding a young horse which was inclined to shy at gaslight. The horse belonged to deceased. Witness said, "Can I assist you in taking the horse home?" Deceased said, "No, he is getting much better. He does not shy so much now. I will just ride him up the road to show you, and then we will go both together home." Witness said he spoke to deceased because the horse was rather restless, and he thought it might slip down on the granite. The deceased was alright and not the slightest the worse for drink. Deceased rode the horse up as far as where light was glittering across the road. There it stopped dead, jumped sideways across the road on to the cement path, and its feet flying from under it, the horse came down on the top of deceased. The horse then gathered itself up on to its legs, and deceased's foot hung in the stirrup while he was dragged ten or twelve yards. Then the stirrup leather drew off from the spring of the saddle, and when deceased fell witness saw the horse kick at him, and believed it hit him. Deceased was immediately coveyed home and attended by Mr. E. B. Crowfoot. When witness talked to him about the accident on Wednesday afternoon, deceased said he did not remember anything after the horse stopped. Deceased died about twenty minutes past six on Thursday.

Charles Henry Barkham, compositor, corroborated the evidence of the last witness as to what happened, and also as to deceased being quite sober.

Mr. E. B. Crowfoot, surgeon, said he attended the deceased until his death on Thursday. The cause of death was internal injury either to the liver or bowels. When he first saw him, deceased was suffering from shock to the system, and afterwards complained of very severe pains of the body on the right side. A few hours afterwards he began to vomit a great deal of blood, and continued to do so until he died. He had no doubt it was the result of some very serious injury, which could have been caused either by the horse falling upon him or else by the horse kicking him.

The Coroner said no one was to blame. The horse was much inclined to shy by gaslight. The jury returned a verdict of "Accidental death."

Death from Glanders of an Austrian Physician.

The *Daily News* Correspondent writes:—A most distressing case has caused a wing of the General Hospital to be closed for a time, and the nurses to be kept out of contact with any one not belonging to the hospital. In the month of August a man was brought to the hospital suffering from the terrible disease called glanders, which he had taken from a horse similarly afflicted. He soon died, and a military surgeon, Dr. Rowalski, who has spent many years examining bacilli of all kinds, undertook to subject the dead body to a close examination. This was in itself a most dangerous piece of work. By the aid of the microscope, he soon succeeded in finding the bacillus, which he reared to watch the manner of its growth and its vitality. An ambitious young physician, Dr. Hoffmann, expressed his doubts as to whether the bacillus reared artificially had still in it the power of infection. Dr. Rowalski gave him one of his families, and Dr. Hoffmann soon saw that the poison still had the most deadly power. All the animals he injected with it died of the horrible malady. At the beginning of October Dr. Hoffmann caught cold, and felt acute pains in his side. The pain increased, and Dr. Hoffmann tried to cure it by injecting morphia. He did this with the syringe which he had used for injecting the glanders poison into the doomed animals. Although it had been disinfected in glowing heat, some particles of the poison must

still have been in it, for Dr. Hoffmann grew worse every day, and last Monday his friends took him to the hospital. His colleagues were horrified when they saw him—the whole body being covered by terrible ulcers, which, when they were examined, proved to be filled with the glanders poison. The case touches the whole medical profession to the heart; two hundred doctors are busying themselves with it, and all the great professors visit the patient several times a day. Until the 22nd Dr. Hoffmann was in great pain, but he then happily lost all consciousness. He knew perfectly well what was the matter with him, and gave a cool account of what he had done, and what the consequences were likely to be. Later in the night Dr. Hoffmann died without regaining consciousness.

Inoculation in Holland.

We find the following in the pages of *The Farmer and Stock Breeder*.

Dairy farmers will be interested to know that inoculation for that dreaded disease of animals, pleuro-pneumonia, has proved a success in Holland. Professor Williams has brought some striking figures before the Veterinary College at Edinburgh. He showed that as many as 6,000 diseased animals were slaughtered in 1871 before inoculation became compulsory in that country, whereas in 1886 and 1887 the numbers had fallen to one animal each year.

The Dog this time.

Typhoid fever is the latest enemy to the canine race. Dr. J. R. Roberts. of the Indian Medical Service, describes (*Ind. Med. Gaz.*) symptoms occurring in dogs of European breeds in India, which are identical with what mark the course of the fever, and if his observations are correct the fact that dogs are liable to typhoid would help to explain the continued prevalence of the disease in Indian cantonments, in spite of the sanitary precautions taken.

How Glanders is Spread.

Our attention has just been called to a matter of the most serious importance, and one which reveals an almost incredible laxity on the part of some local authorities in carrying out the provisions of the Contagious Diseases Acts. We all know the nature of the terrible disease called glanders in horses—how it is not only a fatal and highly contagious disease, but is also easily communicable to man. The other week an outbreak of this disease occurred in Edinburgh, and the owner was prosecuted and fined for not reporting the same. According to the Contagious Diseases Acts, animals that have been suffering from glanders must, on being destroyed, be either buried or burned; and one of the diseased horses in this case, under the direction of the veterinary inspector, was walked through the streets of Edinburgh out to a knackery in the county, thus incurring some risk of spreading contagion, the excuse for this being that there was no convenience in the city for burying or burning the carcase. And to crown all, on the following day a large draft of horses from this glanders-smitten stable were sold by public auction; so that there may now be fourteen or fifteen centres of glanders in the city or district.—*North British Agriculturist.*

CORRESPONDENCE.

Communications for the Editor to be addressed 20 Fulham Road, S.W.

Original articles and reports should be written on one side only of the paper, and authenticated by the names and addresses of the writers, not necessarily for publication.

We shall be obliged by early intelligence of all matters worth bringing under the notice of the profession, and thankful to any friends who may send us cuttings from local papers, containing facts of interest.

WARBLES.

Sir,

I think you are rather severe upon us in your editorial notes this week in reference to Warbles: you say "with the exception of Mr. Thompson of Aspatria, none of our profession seem to have given it more than passing notice." Well I think every one of the profession, or at least a great majority of them, understand the cause of Warbles and the cure as well as the prevention, and is able to give sound advice on the subject whenever they are asked. In my experience we are not often asked about them. Last year one farmer only consulted me how to prevent the attack of the Warble-fly, I gave him some crude carbolic acid and told him to smear a little along the back, shoulders and flank, he was so delighted with the result that he came back in a few days and told me his cattle were all quietly lying chewing the cud in perfect immunity from their former enemy.

Miss Ormerod, in this week's issue of the Record, gives a very clear description of how Warbles are produced in cattle, and the enormous loss they cause to stock owners by the injury to the hide and subjacent tissue.

There is another form of loss that is apt to be overlooked. During the attack of the warble-fly the cattle rush about wildly in their endeavours to get rid of their pest, run against fences and injure themselves, frequently breaking a leg in attempting to leap a fence; in the case of pregnant cows abortion, not to mention the loss of flesh in fat animals.

Miss Ormerod says it has not been made out whether the eggs are laid on the skin or inserted into the hide. I have always held the opinion that the eggs are inserted into the hide, and that this is the cause why cattle rush about so wildly to get rid of being stung by the insect during the laying of her eggs.

Turiff, N.B. Yours, A. W. Wood.

[We did not mean to say that our practitioners failed to understand the cause and prevention of Warbles. We expressed our regret that it had been left to that clever entomologist Miss Ormerod to rouse the stock-owner's attention to his loss. We complain that with so many individuals in our profession, who are good sound observers—really valuable depositories of useful knowledge—so few contribute to the enlightenment of any circle wider than their own local practice. We are not jealous of, but thankful to Miss Omerod; we should have been prouder if the credit of this bit of work, so useful to the owner of stock, could have been claimed by our profession. It is no good knowing if the public don't know that you know.

The evil effects of the "rushing about" is fully commented on in Miss Ormerod's leaflet, as well as several other matters we did not think it necessary to repeat in our pages.—Ed.]

If "Veterinary Student" will forward his name and address—not for publication—we shall be pleased to insert his communication. We *cannot* insert anonymous letters.